# PRODUCT DATA

## Type 2250-L (2250 Light)

with Sound Level Meter Software BZ-7130
Optional Software: 1/1-oct. Frequency Analysis BZ-7131, 1/3-oct. Frequency Analysis BZ-7132 and Logging BZ-7133, Signal Recording Option BZ-7226 and Tone Assessment Option BZ-7231

*Type 2250-L (2250 Light) has been developed specifically for measuring occupational, environmental and product noise, while complying fully with all the relevant national and international standards.*

*Extensive user studies have been paired with state-of-the-art technology to make this analyzer a robust, effective and elegant tool for those applications.*

*Using the large, high-contrast, touch screen interface, the analyzer can easily be set up to display and measure just what is needed from the extensive list of parameters provided by the analyzer.*

*Back in the office use the included Measurement Partner Suite BZ-5503 to manage, view or even control 2250 Light, as well as export your results to software packages such as Microsoft® Excel®. Measurement Partner Suite BZ-5503, with or without the optional advanced modules, is the quickest route from measurement data to finished report.*

## Uses and Features

### Uses

- Environmental noise assessment
- Occupational noise evaluation
- Hearing protection selection
- Noise reduction
- Product quality control
- General purpose Class 1 sound measurements
- Real-time analysis of sound in 1/1- and 1/3-octave bands
- Tone assessment using 1/3-octave methods
- Loudness and noise rating measurements
- Time history analysis for broadband parameters and spectra (Logging)
- Audiometer calibration

### Features

- Large, high-resolution, touch-sensitive color screen
- Multi-lingual user interface: 23 languages
- 'Traffic light' status indicator
- Plug-in rechargeable Li-ion battery
- Data storage on high-capacity plug-in memory cards or USB flash drive
- 120 dB dynamic range – up to 140 dB
- 24- or 16-bit signal recording during all or parts of a measurement
- Broadband and spectrum logging
- Logging profile display with markers
- Manually activated recording of measured signals in .WAV format
- Back-erase to delete unwanted noise events
- Included PC software for archiving, exporting and reporting
- GPS coordinates stored with measurement data
- Simultaneous measurement of acoustic and weather parameter data
- Robust and environmentally protected (IP 44)
- Upgrade to Type 2250 with the trade-in program

## Introduction

Type 2250-L is built on the core platform of the award winning design of Type 2250 and maintains the renowned Brüel & Kjær measurement excellence and Type 2250 platform's ease of use in an efficient and versatile sound measurement instrument. Whether addressing workplace noise compliance, environmental noise assessment, or product noise certification, Type 2250-L offers the functionality to meet your requirements. A unique user interface makes your measurements easier to perform with results that are easier to analyse and report.

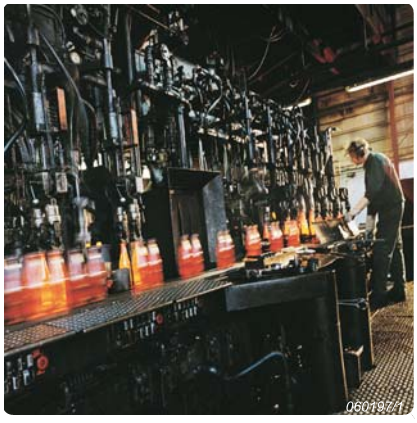
The comfortable and secure design feels safe in your hand, and the buttons fall precisely where they need to be for a one-thumb operated Start, Stop and Save. The 'Traffic Light' indicator surrounding the Start/Pause pushbutton gives you an immediate visual indication of measurement status, even in the brightest sunshine. The large, high contrast, touch screen/display, lets you select parameters on the display and easily store those setups in your Type 2250-L for future measurements.

This data sheet describes the suite of software applications available for Type 2250-L. All instruments come with the Sound Level Meter Software for Type 2250-L (BZ-7130) included.

**NOTE:** Type 2250-L can be upgraded to a Type 2250 Hand-held Analyzer, which has added features and supports a wider range of applications, such as enhanced logging, triggered signal recording and reverberation time software. See Type 2250 Product Data BP 2025 for more information. The upgrade is on an exchange basis, please contact you local Brüel & Kjær representative for details.Measurement Partner Suite BZ-5503 is the next step in evolution from Utility Software BZ-5503, and its standard configuration is included with your hand-held analyzer. This configuration provides data archive, preview and export capabilities as well as software maintenance and remote online display.

## Applications

### Workplace and Industrial Hygiene Noise Measurement Applications



Type 2250-L is an easy-to-use, powerful tool to make you more productive, and more confident working in hearing conservation programs.Type 2250-L was developed with workplace noise as a special concern.

For occupational health noise parameters, nothing was left out. Type 2250-L can measure Fast and Slow and A- and C-Weighted SPLs simultaneously (along with a separately weighted peak detector) so that the values you need to specify hearing protection are immediately on the display. Parallel analysis allows you to compare a 3 dB exchange rate average measurement with a selectable alternate 4, 5 or 6 dB exchange rate, including separate dose, expected dose and exposure values.

Type 2250-L offers three independent threshold peak event counters, along with simultaneous Fast, Slow and Impulse RMS detectors, to assess impulsive noise.

With the optional 1/1- and 1/3-octave frequency analysis software options, instantly assess noise control and detailed hearing-protection requirements for a surveyed location. All the octaves are measured at the same instant, along with broadband A- and C-weighted values, so there is no filter switching or range changing.

Sometimes noise levels in the workplace vary dramatically, and perhaps irregularly. To assess this kind of noise it is helpful to measure and analyse a noise profile – a measurement that shows how the sound varies with time. The logging option for Type 2250-L provides this capability in a natural, intuitive way. If you have installed the 1/1- or 1/3-octave real-time frequency analysis option, Type 2250-L seamlessly integrates the spectrum information into the noise profile.

Signal Recording Option BZ-7226 lets you record the measurement signal in order to identify and document sound sources.

Easily export, archive and report your measurements using the included Measurement Partner Suite BZ-5503, or export the results to Brüel & Kjær's Protector Type 7825, where you can organise and document a company's noise and hearing conservation program. Type 7825 calculates noise exposure according to ISO 9612–2.

## Environmental Noise Assessment Applications

The tasks for environmental noise measurements are varied, so the instrument you pick for your measurements needs to be flexible, easy to configure, powerful and accurate. Type 2250-L is all that and more, ideal for a simple noise enforcement measurement one moment and ideal for a complex environmental impact survey the next.

Type 2250-L with included Sound Level Meter software BZ-7130 is ideal for spot noise enforcement checks. Press the Start pushbutton and, when ready, press the same button to stop the measurement. Press the Save pushbutton and you will not only be saving the results, but also the time and duration of the measurement and the date and time of the last calibration.

Type 2250-L can measure all the parameters needed for environmental noise, including dual frequency weightings, Fast, Slow, and Impulse Time Averaging, $L_{eq}$s and a full range of statistical distributions. Just as important, you can set Type 2250-L to display only the parameters you need and save that display so Type 2250-L starts, tailor-made for your use, every time.

For more involved environmental applications, you'll need to add the Logging option. Now you can set the instrument to record all, or up to ten selected measurement results at intervals from one second to one day, for a durations up to 1 month. The display offers two simultaneous views, one of the complete profile and a 'zoomed-in' 100-sample 'window', that are intuitively linked by the cursor.

For the precise timing of noise events, an alternative Fast Log view gives you the $L_{AF}$, $L_{AS}$ and $L_{Aeq}$ results for 100 ms intervals. In either the fast log, or profile view, you can define up to five different markers anywhere in the profile, to identify noise sources or events. When you use the real-time frequency analysis options, 1/1-octave or 1/3-octave, the frequency spectrum average, maximum and minimum values can be

logged along with the overall values. With the Tone Assessment Option, annoying tones in the spectrum may be assessed according to the ISO 1996 standard. Save and view the noise profiles on your Windows® PC with the included Measurement Partner Suite and use its optional modules for noise assessment based on logging and frequency analysis.

Make these measurements with the incredible 120 dB dynamic range of Type 2250-L, allowing measurements from the low noise floor of the instrument to over 140 dB. Without a range switch to consider, you can now make measurements without fear of overload, and still capture the nuances of a silent night. Type 2250-L is an ideal entry point to safe, easy and precise environmental noise measurements.

## Product Noise Measurement

Brüel & Kjær long ago set the standard for product noise measurements. Now, whether you have a simple A-weighted sound limit requirement, or need to evaluate a 1/3-octave reverberation chamber sound power test, Type 2250-L is scalable to your requirements.

Type 2250-L can be used as a hand-held device for easy portability, or it can be operated using your Microsoft® Windows PC as an online-, USB- or LAN-controlled device in your laboratory. The user-defined templates make switching between applications easy.

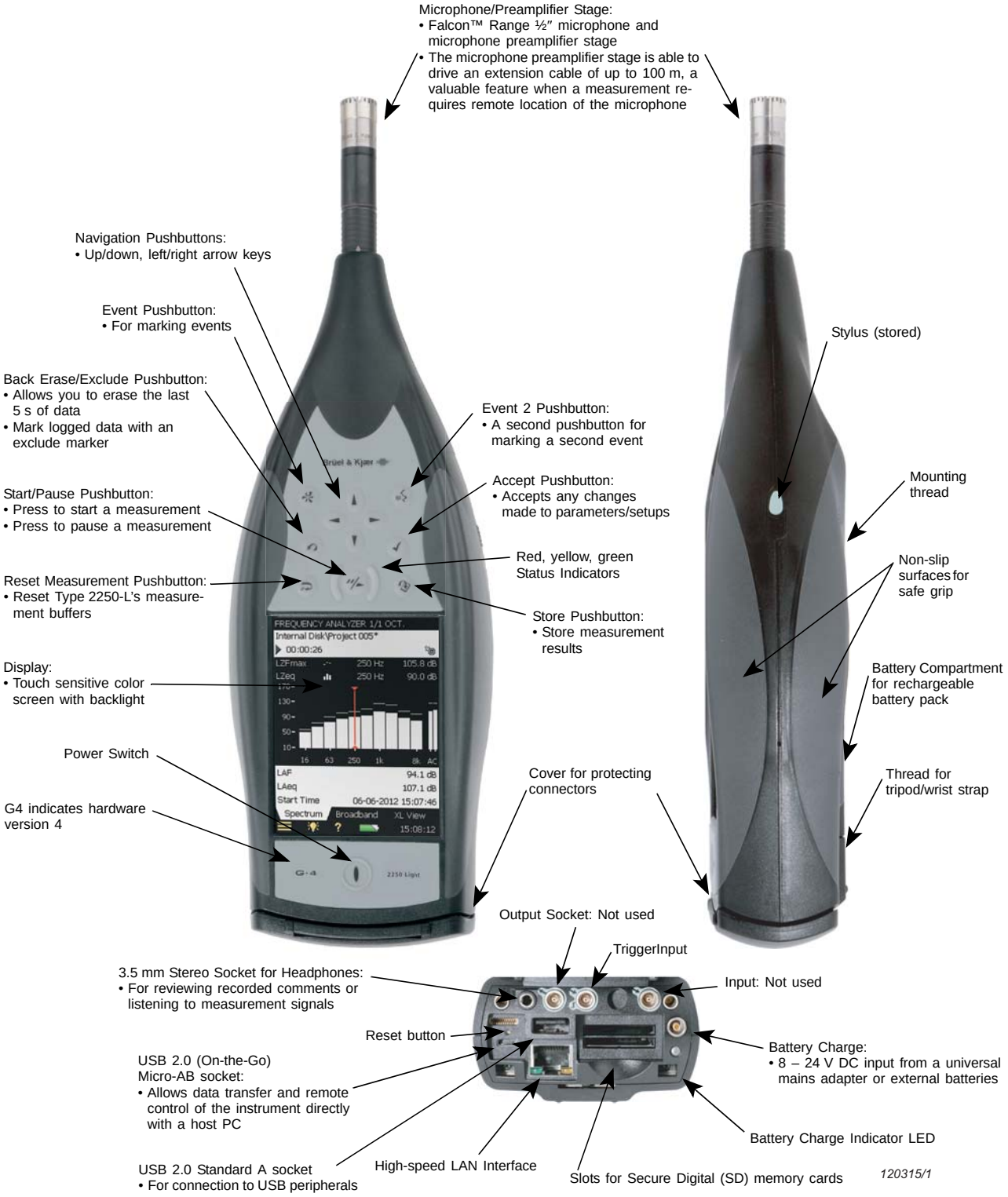
The wide 120 dB dynamic range of Type 2250-L eliminates concern for overloads, and you can set a preset measurement time to add consistency to your measurements. Use the built-in headphone style (3.5 mm) output jack to send the signal out to other measurement instrumentation. Measurement Partner Suite (included) makes it easy to keep track of results in an organised archive structure. And, of course, there's the Class 1 precision and reputation of Brüel & Kjær, giving you and your customers' complete confidence in your measurements, while adding value to your products.

## Using the Platform

Great care has been taken to ensure that the hardware is ergonomically optimal in field use. Similarly, the software design has focused not only on making valid measurements but also on making field use efficient, convenient and intuitive.

All user choices for setups (what to measure) and preferences (how to display it) are controlled using easy-to-understand lists, that can be expanded and collapsed. No more cluttered displays, choose only the parameters you want to see.

***Fig. 1*** *Key features of Hand-held Analyzer Type 2250*


Microphone/Preamplifier Stage:
• Falcon™ Range ½″ microphone and microphone preamplifier stage
• The microphone preamplifier stage is able to drive an extension cable of up to 100 m, a valuable feature when a measurement requires remote location of the microphone
Navigation Pushbuttons:
• Up/down, left/right arrow keys
Event Pushbutton:
• For marking events
Back Erase/Exclude Pushbutton:
• Allows you to erase the last 5 s of data
• Mark logged data with an exclude marker
Start/Pause Pushbutton:
• Press to start a measurement
• Press to pause a measurement
Reset Measurement Pushbutton:
• Reset Type 2250-L's measurement buffers
Display:
• Touch sensitive color screen with backlight
Power Switch
G4 indicates hardware version 4
Event 2 Pushbutton:
• A second pushbutton for marking a second event
Accept Pushbutton:
• Accepts any changes made to parameters/setups
Red, yellow, green Status Indicators
Store Pushbutton:
• Store measurement results
Stylus (stored)
Mounting thread
Non-slip surfaces for safe grip
Battery Compartment for rechargeable battery pack
Thread for tripod/wrist strap
Cover for protecting connectors
Output Socket: Not used
TriggerInput
Input: Not used
3.5 mm Stereo Socket for Headphones:
• For reviewing recorded comments or listening to measurement signals
Reset button
Battery Charge:
• 8 – 24 V DC input from a universal mains adapter or external batteries
USB 2.0 (On-the-Go) Micro-AB socket:
• Allows data transfer and remote control of the instrument directly with a host PC
Battery Charge Indicator LED
USB 2.0 Standard A socket
• For connection to USB peripherals
High-speed LAN Interface
Slots for Secure Digital (SD) memory cards
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## Sound Level Meter Software for Type 2250-L – BZ-7130

### SLM Module

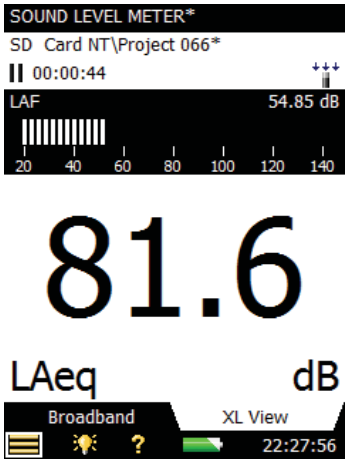


***Fig. 2***
*The large numeric display – ideal for a spot noise enforcement check*

Type 2250-L comes with Sound Level Meter Software for Type 2250-L included. Type 2250-L is a versatile broadband sound level meter that complies with the latest international standard (IEC 61672–1) as well as previous international and national standards.

All quantities are measured simultaneously. For example, A and C frequency weighted levels are measured at the same time and F, S and I time weightings are applied in parallel, and Peak levels are also measured. Full statistics are also computed on-the-fly. Combine this with the dynamic range exceeding 120 dB and never miss a beat! You get all the parameters in one attempt, under- range is non-existent and you will have difficulties provoking an overload. A full compliment of occupational health sound parameters are provided simultaneously, complying with national and international standards. The detailed list of available parameters can be found in the specifications section. You choose what you want on the display, but, at any time – during or after the measurement – all other parameters can be inspected and reported.

## 1/1- and 1/3-octave Frequency Analysis Software for Type 2250-L – BZ-7131 and BZ-7132

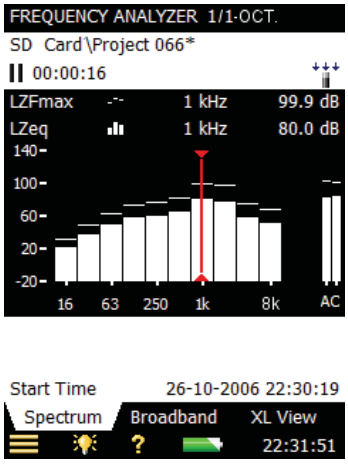


***Fig. 3***
*Example of 1/1-octave frequency analysis. Note that two spectra are displayed simultaneously*

1/1-octave Frequency Analysis Software for Type 2250-L BZ-7131, and 1/3-octave Frequency Analysis Software for Type 2250-L BZ-7132 are optional software modules that enable real-time measurements in 1/1- or 1/3-octave bands over a wide frequency range. This makes it a simple matter to obtain spectra in order to, for example, select hearing protection, qualify heat and ventilation systems, or assess tonality.

The following frequency ranges are available:
•1/1-octave spectra (centre frequencies 16 Hz to 8 kHz)
•1/3-octave spectra (centre frequencies 12.5 Hz to 16 kHz)

Each band provides unrivalled dynamic range from the noise floor in that particular band to 140 dB. That is, a dynamic range generally in excess of 135 dB. Spectra can be A-, B-, C- or Z-weighted. Five spectra are measured and stored and, in addition, two instantaneous spectra are available for display, for example, a minimum and maximum spectrum, that can be superimposed on the display. All the broadband quantities measured by Sound Level Meter Software BZ-7130 are computed in parallel with the frequency analysis.

***Fig. 4***
*Tone Assessment BZ-7231 shoeing 1/3-octave bands with audible tones over a set limit (identified by the blue dots)*

### Tone Assessment – BZ-7231

Tone Assessment (optional application) identifies any 1/3-octave bands with audible tones above a set limit. The assessment is based on the band's prominence versus adjacent bands. The adjustment is the penalty to add to $L_{Aeq}$.

Annoying tones in the spectrum may be assessed according to the ISO 1996 standard. The level of each 1/3-octave band is compared to the level of its neighbours, and all tones as well as the overall penalty (adjustment) are indicated. The search parameters are user adjustable to suit national requirements.

## Logging Software for Type 2250-L – BZ-7133

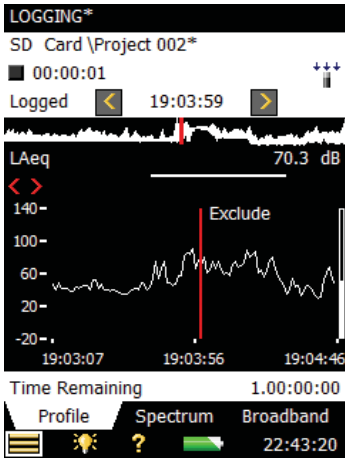


***Fig. 5***
*Display showing part of a logging profile and an exclude marker*

With optional Logging Software enabled, Type 2250-L becomes a versatile instrument for obtaining time histories. The Logging Software allows you to select freely among the broadband parameters and log them at intervals from 1 s to 24 h. At the same time $L_{AF}$, $L_{AS}$ and $L_{Aeq}$ can be logged at 100 ms intervals.

If Frequency Analysis Software BZ-7131 or BZ-7132 is enabled, the Logging Software additionally lets you log spectra at the same 1 s to 24 h intervals.

Logging Software BZ-7133 incorporates a number of features designed to make difficult field work as manageable as possible.

Some of these features are:

- Five user-definable markers can be set on-the-fly, making it easy to clearly indicate specific noise sources
- Markers can be set directly on the profile display using the stylus and the touch screen. Simply 'tap and drag' on the part of the profile you want to mark and select a marker from the drop-down list
- Markers can even be set after the fact. The display covers the latest 100 samples (100 s of profile when logging at 1 s intervals, otherwise more), so in most cases, you can wait for the event (or disturbance) to end before placing your marker. Alternatively, scroll back in the profile and set your marker
- Browse easily between markers (like signal recordings)
- The profile display can be 'frozen' at any time (automatic when you tap the screen)

All markers and annotations are saved with the measurement. No further bookkeeping is required. When importing data into Measurement Partner Suite BZ-5503 for further analyses, markers, as well as annotations, are directly accessible on the profile.

Data are stored directly on SD cards or USB flash drive and can be read directly by Measurement Partner Suite. This means that even large amounts of data are quickly transferred to a PC. Examples of the required memory follow (values should be compared to the standard size of the SD cards used, which start at 2 GB):

- Five broadband parameters, no statistics: 1 Mbyte*
- All broadband parameters, one 100 ms parameter: 7 Mbyte
- All broadband parameters, one 100 ms parameter, all 1/3-octave spectra: 35 Mbyte
- All broadband parameters, one 100 ms parameter, all 1/3-octave spectra, full statistics: 88 Mbyte

***Fig. 6***
*Hand-held analyzer measuring outdoor noise using Outdoor Microphone Type 4952, Weather Station Kit MM-0316-A and All-weather Case Type 3535-A*

### Logging in the Field

For outdoor measurements of environmental noise, your analyzer may need extra weather protection, as offered by the All-weather Case Type 3535-A and Outdoor Microphone Type 4952. For details, please refer to Product Data BP 2251 and Product Data BP 2099 respectively.

To identify the portions of your measurement that are within allowable limits for wind speed and direction, use Weather Station Kit MM-0316-A (two parameters) or MM-0256-A (six parameters). Noise and weather parameters are captured simultaneously on the instrument and are available for display and post-processing in Measurement Partner Suite BZ-5503 back in the office.

### Charge Injection Calibration (CIC)

Measurement integrity is vital, particularly if the system is operating unattended. CIC provides a means of auto-checking the measurement system for 10 s to ensure the system's continued and accurate operation.

With the Logging software, CIC can be set to run at the beginning and end of measurement.

With the Enhanced Logging Software BZ-7225, CIC can be programmed to run at up to four user-specified times in each 24 hour period. It may also be activated manually.

* These examples use values for 1 s logging periods for 24 h. Other values easily compute from these. Space needed for annotations and recordings must be added to this.

## Signal Recording Option – BZ-7226

Signal Recording Option BZ-7226 works with all other applications. In all cases it allows you to make recordings of the actual measured signal. Recordings are automatically attached to the measurement and kept with it, even after transfer of the data to a PC.

One purpose of the Signal Recording Option is to let you record the measurement signal in order to identify and document sound sources. Automatic gain control is available to allow for any signal level. For example:

- The measured $L_{Aeq}$ at 57 dB, did it actually stem from the rather distant compressor, or from other sources such as nearby birds or traffic? Not necessarily easy to evaluate on site, very difficult to document convincingly later. If the signal is recorded: No discussion
- Is it really true that this noise is impulsive and should be penalised accordingly? If the signal is recorded: There may still be an argument, but it is then based on facts

Another important use of signal recording is to record the signal for later processing, such as analysing an engine run-up or a machinery process cycle.

With Sound Level Meter Software BZ-7130 and Frequency Analysis Software BZ-7131, Signal Recording Option BZ-7226 lets you do the following:

- Record all or parts of the measured signal giving rise to specific results, levels and spectra
- Set up your instrument so that recording can be set to start automatically when the measurement is started, or you can initiate recordings manually

With Logging Software BZ-7133, signal recording can be associated with the Event Marker using the Event key or an external signal (for example, from a hand switch; see Ordering Information): The sound during the event is recorded and attached to the appropriate part of the profile

In all of the above cases the maximum duration of recordings can be set (the analyzer is only limited by available storage on the memory card currently in use). Recording signals may require large amounts of storage; therefore, Signal Recording Option BZ-7226 allows you to decide on the trade-off between storage needed and recording quality (sampling rate).

The Signal Recording Option offers a choice of 24- or 16-bit recording. You can use 24-bit recording to capture the full 120 dB dynamic range of Type 2250/2270, which is convenient for later signal analysis. You can use 16-bit recording to consume less memory; however, this requires selecting the level range for recording (or using the automatic gain control).

## Post-processing Software

Measurement Partner Suite BZ-5503, in its standard configuration, is included with your hand-held analyzer. This configuration provides data archive, preview and export capabilities as well as software maintenance and remote online display.

In addition to the standard configuration, valuable data analysis and post-processing functionalities are available in a growing suite of optional modules. Measurement Partner Suite offers these modules on a subscription basis: Only pay for what you need, when you need it. For more information on Measurement Partner Suite BZ-5503, please consult Product Data BP 2430.

Additional post-processing applications (available separately) include:

- Noise Explorer™ Type 7815 for data viewing and archiving
- Evaluator™ Type 7820 for advanced environmental noise assessment
- Protector™ Type 7825 for workplace noise assessment

## Overview of Type 2250-L Software Features

The table that follows presents a summary of the features of each of the software modules available with Type 2250-L. See Specifications for details.

| Feature | SLM Software | 1/1-octave Frequency Analysis Software | 1/3-octave Frequency Analysis Software | Logging Software |
|---|---|---|---|---|
| Back-erase – last 5 seconds of measurement data | ● | ● | ● | |
| 120+ dB Dynamic Range – no need for range switching | ● | ● | ● | ● |
| Sound levels up to 140 dB with supplied Microphone Type 4950 | ● | ● | ● | ● |
| IEC/ANSI SLM standards Type/Class 1 | ● | ● | ● | ● |
| Frequency weightings A, B, C, Z (linear) and time weightings F, S, I | ● | ● | ● | ● |
| Free-field/diffuse-field correction | ● | ● | ● | ● |
| Preset time start/stop | ● | ● | ● | ● |
| Multi-language user interface | ● | ● | ● | ● |
| Context-sensitive help | ● | ● | ● | ● |
| Broadband statistics based on $L_{Aeq}$, $L_{AF}$ or $L_{AS}$ | ● | ● | ● | ● |
| Broadband frequency range: 5 Hz – 20 kHz | ● | ● | ● | ● |
| Remote control using Analogue or GSM modem | ● | ● | ● | ● |
| Transfer of data files while measuring (USB, LAN or modem) | ● | ● | ● | ● |
| Recording of measured signal during measurement – 16 or 24 bit | ●* | ●* | ●* | ●* |
| Timers for automatic measurement start (with Signal Recording Option) | ● | ● | ● | ● |
| Occupational health parameters | ● | ● | ● | ● |
| Weather data and GPS input | ● | ● | ● | ● |
| Tone assessment | | ● | ● | ● |
| Loudness and Noise Rating results | | ● | ●† | ●† |
| 1/1-octave spectra (centre frequencies 16 Hz to 8 kHz) | | ● | | ● |
| 1/3-octave spectra (centre frequencies 12.5 Hz to 16 kHz) | | | ● | ●† |
| Charge Injection Calibration (CIC) | | | ● | ● |
| Recording of signal during noise events (key or ext. signal) | | | ●* | ●* |
| Logging of all or selected broadband parameters and spectra | | | | ● |
| Logging period 1 s to 24 h, Logging time up to 31 d | | | | ● |
| $L_{Aeq}$, $L_{AS}$, $L_{AF}$ logged every 100 ms | | | | ● |
| Profile display | | | | ● |
| Profile overview of entire measurement | | | | ● |
| Markers on profile display | | | | ● |

* If Signal Recording Option is enabled
† If 1/1- or 1/3-octave Frequency Analysis Software is enabled

## Compliance with Standards

| | |
|---|---|
| CE C-Tick | CE-mark indicates compliance with the EMC Directive and Low Voltage Directive.<br>C-Tick mark indicates compliance with the EMC requirements of Australia and New Zealand. |
| **Safety** | EN/IEC 61010–1, ANSI/UL 61010–1 and CSA C22.2 No.1010.1: Safety requirements for electrical equipment for measurement, control and laboratory use. |
| **EMC Emission** | EN/IEC 61000–6–3: Generic emission standard for residential, commercial and light industrial environments.<br>CISPR 22: Radio disturbance characteristics of information technology equipment. Class B Limits.<br>FCC Rules, Part 15: Complies with the limits for a Class B digital device.<br>IEC 61672–1, IEC 61260, IEC 60651 and IEC 60804: Instrumentation standards.<br>Complies with Canadian standard ICES–001 |
| **EMC Immunity** | EN/IEC 61000–6–2: Generic standard – Immunity for industrial environments.<br>EN/IEC 61326: Electrical equipment for measurement, control and laboratory use – EMC requirements.<br>IEC 61672–1, IEC 61260, IEC 60651 and IEC 60804: Instrumentation standards |

## Specifications – Hand-held Analyzer Type 2250-L (2250 Light) Platform

Specifications apply to 2250 Light fitted with Microphone Type 4950 and Microphone Preamplifier ZC-0032:

### Microphone

**SUPPLIED MICROPHONE**
**Type 4950:** Prepolarized Free-field ½″ Microphone
**Nominal Open-circuit Sensitivity:** 50 mV/Pa (corresponding to –26 dB re 1 V/Pa) ±2 dB
**Capacitance:** 12.5 pF (at 250 Hz)

**MICROPHONE PREAMPLIFIER ZC-0032**
**Nominal Preamplifier Attenuation:** 0.3 dB
**Connector:** 10-pin LEMO
**Extension Cables:** Up to 100 m in length between the microphone preamplifier and 2250 Light, without degradation of the specifications

**MICROPHONE POLARIZATION VOLTAGE**
Selectable between 0 V and 200 V (hardware version 4 only)

**SELF-GENERATED NOISE LEVEL**
Typical values at 23°C for nominal microphone open-circuit sensitivity:

| Weighting | Microphone | Electrical | Total |
|---|---|---|---|
| A | 14.0 dB | 12.7 dB | 16.4 dB |
| B | 12.9 dB | 11.9 dB | 15.4 dB |
| C | 13.0 dB | 13.6 dB | 16.3 dB |
| Z<br>5 Hz–20 kHz | 14.4 dB | 19.3 dB | 20.5 dB |

### Interface

**KEYBOARD**
**Pushbuttons:** 11 keys with backlight, optimised for measurement control and screen navigation

**ON-OFF BUTTON**
**Function:** Press 1 s to turn on; press 1 s to enter standby; press for more than 5 s to switch off

**STATUS INDICATORS**
**LEDs:** Red, amber and green

**DISPLAY**
**Type:** Transflective back-lit touch screen, 240 × 320 dot matrix Black and white scheme
**Backlight:** Adjustable level and on-time

**USER INTERFACE**
**Measurement Control:** Using pushbuttons on keyboard
**Setup and Display of Results:** Using stylus on touch screen or pushbuttons on keyboard
**Lock:** Keyboard and touch screen can be locked and unlocked

**USB INTERFACE**
USB 2.0 OTG Micro AB and USB 2.0 Standard A sockets

**MODEM INTERFACE**
Connection to Internet through GPRS/EDGE/HSPA modem connected through:
- the USB Standard A Socket

Supports DynDNS for automatic update of IP address of host name

**PRINTER INTERFACE**
PCL printers, Mobile Pro Spectrum thermal printer or Seiko DPU S245/S445 thermal printers can be connected to USB socket

### Inputs/Outputs

**SECURE DIGITAL SOCKET**
- 2 × SD sockets

Connect SD and SDHC memory cards

**LAN INTERFACE SOCKET**
- Connector: RJ 45 Auto-MDIX
- Speed: 100 MbpsXXXX
- Protocol: TCP/IP

**TRIGGER SOCKET**
**Connector:** Triaxial LEMO
**Max. Input Voltage:** ±20 Vpeak
**Input Impedance:** >47 kW
**Precision:** ±0.1 V

**HEADPHONE SOCKET**
**Connector:** 3.5 mm Minijack stereo socket
**Max. Peak Output Level:** ±1.4 V
**Output Impedance:** 32 Ω in each channel

### Power

**EXTERNAL DC POWER SUPPLY REQUIREMENTS**
Used to charge the battery pack in the instrument
**Voltage:** 8–24 V DC, ripple voltage <20 mV
**Current Requirement:** min. 1.5 A
**Power Consumption:** <2.5 W, without battery charging, <10 W when charging
**Cable Connector:** LEMO Type FFA.00, positive at centre pin

**EXTERNAL AC MAIN SUPPLY ADAPTOR**
**Part No.**: ZG-0426
**Supply Voltage:** 100 to 120/200 to 240 VAC; 47 to 63 Hz
**Connector:** 2-pin IEC 320

**BATTERY PACK**
Rechargeable Li-Ion battery
**Part No.:** QB-0061
**Voltage:** 3.7 V
**Capacity:** 5200 mAh nominal
**Typical Operating Time:** >10 h (screen backlight dimmed); >7 h (full screen backlight)
**Battery Cycle Life:** >500 complete charge/discharge cycles
**Battery Indicator:** Remaining battery capacity and expected working time may be read out in % and time
**Battery Fuel Gauge:** The battery is equipped with a built-in fuel gauge, which continuously measures and stores the actual battery capacity in the battery unit
**Charge Time:** In instrument, typically 10 hours from empty at ambient temperatures below 30°C. To protect the battery, charging will be terminated completely at ambient temperatures above 40°C. At 30 to 40°C charging time will be prolonged. With External Charger ZG-0444 (optional accessory), typically five hours
**Note:** It is not recommended to charge the battery at temperatures below 0°C (32°F) or over 50°C (122°F). Doing this will reduce battery lifetime

**CLOCK**
Back-up battery powered clock. Drift <0.45 s per 24-hour period

## Storage

**INTERNAL FLASH-RAM (NON-VOLATILE)**
20 Mbyte for user setups and measurement data

**EXTERNAL MEMORY CARD**
**Secure Digital (SD and SDHC) Card:** For store/recall of measurement data
**Compact Flash (CF) Card:** Hardware versions 1 – 3 only. For store/recall of measurement data

**USB MEMORY STICK (Hardware Version 4 only)**
For store/recall of measurement data

## Environmental

**WARM-UP TIME**
**From Power Off:** <2 minutes
**From Standby:** <10 seconds

**TEMPERATURE**
**IEC 60068–2–1 & IEC 60068–2–2:** Environmental Testing. Cold and Dry Heat
**Operating Temperature:** –10 to +50°C (14 to 122°F), <0.1 dB
**Storage Temperature:** –25 to +70°C (–13 to +158°F)

**HUMIDITY**
**IEC 60068–2–78:** Damp Heat: 90% RH (non-condensing at 40°C (104°F))
**Effect of Humidity:** < 0.1 dB for 0% < RH < 90% (at 40°C (104°F) and 1 kHz)

**MECHANICAL**
**Environmental Protection:** IP 44
**Non-operating:**
- IEC 60068–2–6: Vibration: 0.3 mm, 20 $m/s^2$, 10 – 500 Hz
- IEC 60068–2–27: Shock: 1000 $m/s^2$
- IEC 60068–2–29: Bump: 4000 bumps at 400 $m/s^2$

**WEIGHT AND DIMENSIONS**
650 g (23 oz.) including rechargeable battery
300 × 93 × 50 mm (11.8 × 3.7 × 1.9″) including preamplifier and microphone

## User Interface

**LANGUAGE**
User Interface in Catalan, Chinese (People's Republic of China), Chinese (Taiwan), Croatian, Czech, Danish, English, Flemish, French, German, Hungarian, Japanese, Italian, Korean, Polish, Portuguese, Romanian, Russian, Serbian, Slovenian, Spanish, Swedish and Turkish

**HELP**
Concise context-sensitive help in English, French, German, Italian, Japanese, Korean, Polish, Portuguese, Romanian, Serbian, Slovenian and Spanish

**UPDATE OF SOFTWARE**
Update to any version using BZ-5503 through USB or update via Internet:
- any version from 4.0 and up

**WEB PAGE**
Connect to instrument via Internet browser supporting JavaScript. The connection is password protected
**Two Levels of Protection:**
- Guest level: for viewing only
- Administrator level: for viewing and full control of the instrument

# Software Specifications – Sound Level Meter Software for 2250 Light BZ-7130

Conforms with the following National and International Standards:
- IEC 61672–1 (2002–05) Class 1
- IEC 60651 (1979) plus Amendment 1 (1993– 02) and Amendment 2 (2000–10), Type 1
- IEC 60804 (2000–10 ), Type 1
- DIN 45657 (1997–07)
- ANSI S1.4–1983 plus ANSI S1.4 A–1985 Amendment, Type 1
- ANSI S1.43–1997, Type 1

**Note:** The International IEC Standards are adopted as European standards by CENELEC. When this happens, the letters IEC are replaced with EN and the number is retained. 2250 Light also conforms to these EN Standards

## Input

**CORRECTION FILTERS**
**For Microphone Type 4950 and 4952:**
Correct the frequency response to compensate for sound field and accessories
**Accessories (Type 4950 only):** None or Windscreen UA-0237
**Sound Field:** Free-field or Diffuse-field (for Type 4952 only: 0° (Top) reference direction and 90° (Side) reference direction)

## Analysis

**DETECTORS**
**Parallel Detectors:** On every measurement:
**A- or B-weighted:** (Switchable) broadband detector channel with three exponential time weightings (Fast, Slow, Impulse), one linearly averaging detector and one peak detector
**C- or Z-weighted:** (Switchable) as for A- or B-weighted
**Overload Detector:** Monitors the overload outputs of all the frequency weighted channels

**MEASUREMENTS**
X = frequency weightings A or B
Y = frequency weightings C or Z
V = frequency weightings A, B, C or Z
U = time weightings F or S
Q = exchange rate 4, 5 or 6 dB
N = number between 0.1 and 99.9
**For Storage:** Full statistics

**For Display and Storage:**

| | | |
|---|---|---|
| Start Time | Stop Time | Overload % |
| Elapsed Time | $L_{Xeq}$ | $L_{Yeq}$ |
| $L_{XE}$ | $L_{YE}$ | $L_{Ceq}$–$L_{Aeq}$ |
| $L_{XSmax}$ | $L_{XFmax}$ | $L_{XImax}$ |
| $L_{YSmax}$ | $L_{YFmax}$ | $L_{YImax}$ |
| $L_{XSmin}$ | $L_{XFmin}$ | $L_{XImin}$ |
| $L_{YSmin}$ | $L_{YFmin}$ | $L_{YImin}$ |
| $L_{XIeq}$ | $L_{YIeq}$ | $L_{AIeq}$–$L_{Aeq}$ |
| $L_{AFTeq}$ | $L_{AFTeq}$–$L_{Aeq}$ | Time Remaining |
| $L_{ep,d}$ | $L_{ep,d,v}$ | E |
| Dose% | Proj. Dose% | #VPeaks (>NNNdB) |
| #VPeaks (>137dB) | #VPeaks (>135dB) | $L_{Vpeak}$ |
| $T_{Vpeak}$ | $L_{avUQ}$ | TWA |
| $TWA_v$ | DoseUQ% | Proj. DoseUQ% |
| $L_{Aeq,T,mov,max}$ | | |

**Weather Data (requires connection to a weather station):**
Wind Dir. avg.
Wind Dir. min.
Wind Dir. max.
Wind Speed avg.
Wind Speed min.
Wind Speed max.
Amb. Temperature
Amb. Humidity
Amb. Pressure
Amb. Rain Gauge

**Only for Display as Numbers or Quasi-analog Bars**

| | | |
|---|---|---|
| $L_{XS}$ | $L_{XF}$ | $L_{XI}$ |
| $L_{YS}$ | $L_{YF}$ | $L_{YI}$ |
| $L_{XS(SPL)}$ | $L_{XF(SPL)}$ | $L_{XI(SPL)}$ |
| $L_{YS(SPL)}$ | $L_{YF(SPL)}$ | $L_{YI(SPL)}$ |
| $L_{Vpeak,1s}$ | $L_{AN1}$ or $L_{AUN1}$ | $L_{AN2}$ or $L_{AUN2}$ |
| $L_{AN3}$ or $L_{AUN3}$ | $L_{AN4}$ or $L_{AUN4}$ | $L_{AN5}$ or $L_{AUN5}$ |
| $L_{AN6}$ or $L_{AUN6}$ | $L_{AN7}$ or $L_{AUN7}$ | Std.Dev. |
| $L_{Aeq,T,mov}$ | | |

**Instantaneous Weather Data:**
Wind Dir.
Wind Speed
**Instantaneous GPS Data:**
Latitude
Longitude

**MEASURING RANGES**
When using Microphone Type 4950
**Dynamic Range:** From typical noise floor to max. level for a 1 kHz pure tone signal, A-weighted: 16.4 to 140 dB
**Primary Indicator Range:** In accordance with IEC 60651, A-weighted: 23.6 dB to 122.3 dB
**Linearity Range:** In accordance with IEC 60804, A-weighted: 21.5dB to 140.8dB
**Linear Operating Range:** In accordance with IEC 61672, A-weighted 1 kHz: 24.9 dB to 139.8 dB
**Peak C Range:** In accordance with IEC 61672: 1 kHz, 43.0 dB to 142.8 dB

**SAMPLING FOR BROADBAND STATISTICS**
Statistics can be based on either $L_{AF}$, $L_{AS}$ or $L_{Aeq}$:
- Statistics $L_{AFN1–7}$ or $L_{ASN1-7}$ are based on sampling $L_{AF}$ or $L_{AS}$, resp., every 10 ms into 0.2 dB wide classes over 130 dB
- Statistics $L_{AN1–7}$ are based on sampling $L_{Aeq}$ every second into 0.2 dB wide classes over 130 dB

Full distribution saved with measurement
The Std.Dev. (Standard Deviation) parameter is calculated from the Statistics

## Measurement Display and Control

**MEASUREMENT DISPLAYS**
Measurement data displayed as numbers of various sizes and one quasi-analog bar.
Measured data are displayed as dB values, housekeeping data as numbers in relevant format.
Instantaneous measurement $L_{XF}$ is displayed as a quasi-analog bar

**MEASUREMENT CONTROL**
**Manual:** Manually controlled single measurement
**Automatic:** Pre-set measurement time from 1 s to 24 hr in 1 s steps
**Manual Controls:** Reset, Start, Pause, Back-erase, Continue and Store the measurement manually

**BACK-ERASE**
The last 5 s of data can be erased without resetting the measurement

**PREFERENCES**
Date, Time and Number formats can be specified

## Measurement Status

**ON SCREEN**
Information such as overload and running/paused are displayed on screen as icons

**TRAFFIC LIGHTS**
Red, yellow and green LEDs show measurement status and instantaneous overload as follows:
- Yellow LED flash every 5 s = stopped, ready to measure
- Green LED flashing slowly = awaiting calibration signal
- Green LED on constantly = measuring
- Yellow LED flashing slowly = paused, measurement not stored
- Red LED flashing quickly = intermittent overload, calibration failed

**NOTIFICATIONS**
Sends an SMS or e-mail daily at a specified time or if an alarm condition is fulfilled.
**Alarm Conditions:**
- Disk space below set value
- Internal battery enters set state
- Change in measurement state
- Reboot of instrument

## Calibration

Initial calibration is stored for comparison with later calibrations

**ACOUSTIC**
Using Sound Calibrator Type 4231 or custom calibrator. The calibration process automatically detects the calibration level when Sound Calibrator Type 4231 is used

**ELECTRICAL**
Uses internally generated electrical signal combined with a typed-in value of microphone sensitivity

**CALIBRATION HISTORY**
Up to 20 of the last calibrations made are listed and can be viewed on the instrument

## Signal Monitoring

The input signal can be monitored using an earphone/headphones connected to the headphone socket

**HEADPHONE SIGNAL**
Input signal can be monitored using this socket with headphones/earphones
**Gain Adjustment:** –60 dB to 60 dB

## GPS Annotations

A text annotation with GPS information can be attached (Latitude, Longitude, Altitude and position error). Requires connection to a GPS receiver

## Data Management

**PROJECT TEMPLATE**
Defines the display and measurement settings. Setups can be locked and password protected

**PROJECT**
Measurement data stored with the project template

**JOB**
Projects are organised in jobs
Explorer facilities for easy management of data (copy, cut, paste, delete, rename, view data, open project, create job, set default project name)

# Software Specifications – 1/1-octave Frequency Analysis Software for 2250 Light BZ-7131 and 1/3-octave Frequency Analysis Software for 2250 Light BZ-7132

The specifications for BZ-7131 and BZ-7132 include the specifications for Sound Level Meter Software for 2250 Light BZ-7130. **BZ-7131 and BZ-7132 add:**

## Standards

Conforms with the following National and International Standards:
- IEC 61260 (1995–07) plus Amendment 1 (2001–09), 1/1-octave Bands and 1/3-octave Bands, Class 0
- ANSI S1.11–1986, 1/1-octave Bands and 1/3-octave Bands, Order 3, Type 0–C
- ANSI S1.11– 2004, 1/1-octave Bands and 1/3-octave Bands, Class 0

## Frequency Analysis

**CENTRE FREQUENCIES**
**1/1-octave Band Centre Frequencies (BZ-7131 only):**
16 Hz to 8 kHz
**1/3-octave Band Centre Frequencies (BZ-7132 only):**
12.5 Hz to 16 kHz

**MEASUREMENTS**
X = frequency weightings A, B, C or Z
**Spectra for Display and Storage:**
$L_{Xeq}$ $L_{XSmax}$ $L_{XFmax}$
$L_{XSmin}$ $L_{XFmin}$

**Spectra for Display Only:**
$L_{XS}$ $L_{XF}$

**Single Values**

| SIL | PSIL | SIL3 |
|---|---|---|
| $L_{Xeq}(f1\text{-}f2)$[a] | | |
| NR | NR Decisive Band | |
| RC | RC Classification | |
| NCB | NCB Classification | |
| NC | NC Decisive Band | |
| Loudness | Loudness Level (BZ-7132 only) | |

[a] where f1 and f2 are frequency bands in the spectrum.

**MEASURING RANGES**
When using Microphone Type 4950:
**BZ-7131, 1/1-octave:**
- Dynamic Range: From typical noise floor to max. level for a pure tone signal at 1 kHz: 5.9 to 140 dB
- Linear Operating Range: In accordance with IEC 61260: ≤22.9 dB to 140 dB

**BZ-7132, 1/3-octave:**
- Dynamic Range: From typical noise floor to max. level for a pure tone signal at 1 kHz: 1.0 to 140 dB
- Linear Operating Range: In accordance with IEC 61260: ≤20.1 dB to 140 dB

**MEASUREMENT DISPLAYS**
**Spectrum:** One or two spectra superimposed + A/B and C/Z broadband bars
**Table:** One or two spectra in tabular form
**Y-axis:** Range: 5, 10, 20, 40, 60, 80, 100, 120, 140 or 160 dB. Auto zoom or auto scale available
**Cursor:** Readout of selected band

# Software Specifications – Logging Software for 2250 Light BZ-7133

The specifications for BZ-7133 include the specifications for Sound Level Meter Software for 2250 Light BZ-7130. **BZ-7133 adds:**

## Logging

**MEASUREMENTS**
Measurement data logged at pre-set periods into files on:
- SD Card
- USB Memory Stick

**Logging Period:** From 1 s to 24 hr with 1 s resolution
**Fast Logging:** $L_{AF}$ and $L_{Aeq}$ can be logged every 100 ms, irrespective of logging period
**Broadband Data Stored at each Logging Interval:** All, or up to 10 selectable broadband data including weather data and $L_{Aeq,T,mov}$
**Broadband Statistics Stored at each Logging Interval:** Full distribution, or none
**Spectrum Data Stored at each Logging Interval:** All, or up to three selectable spectra (license for BZ-7131 or BZ-7132 required)
**Logging Time:** From 1 s to 31 days with 1 s resolution
**Measurement Total:** For the logging time, in parallel with logging: All broadband data, statistics and spectra (license for BZ-7131 or BZ-7132 required)

Automatic reboot and resume of operation in case of power failure

**MEASUREMENT DISPLAYS**
**Profile:** Graphical display of selectable measurement data versus time. Fast display of next or previous marker; Profile overview of entire measurement
**Y-axis:** Range: 5, 10, 20, 40, 60, 80, 100, 120, 140 or 160 dB. Auto zoom or auto scale available
**X-axis:** Scroll facilities
**Cursor:** Readout of measurement data at selected time

**MARKERS**
Five user-definable markers for on-line marking of noise sources or events anywhere in the profile.
Markers are set using the stylus on the touch screen, or the three marker pushbuttons

## Calibration

**CHARGE INJECTION CALIBRATION (CIC)**
Injects an internally generated electrical signal in parallel with the microphone diaphragm. A manual CIC can be performed whenever there is no measurement in progress
An automatic CIC can be performed at the start and end of a logging measurement

## Storage

Measurement data is stored on an external memory device.
For availability, please refer to the Ordering Information

## Notifications

**ALARM CONDITIONS**
CIC failed (in addition to those specified for BZ-7130)

## Weather Data

**MM-0256-A WEATHER STATION KIT**
Six parameters: Wind Speed, Wind Direction, Ambient Temperature, Ambient Humidity, Ambient Pressure, Rain Gauge)

**MM-0256-A WEATHER STATION KIT**
Two parameters: Wind Speed, Wind Direction

## Software Specifications – Signal Recording Option BZ-7226

Signal Recording Option BZ-7226 is enabled with a separate license. It works with all the software for Type 2250-L: Sound Level Meter, Frequency Analysis and Logging Software
For data storage, Signal Recording requires:
- SD Card
- USB Memory Stick

**RECORDED SIGNAL**
A-, B-, C- or Z-weighted signal from the measurement transducer

**AUTOMATIC GAIN CONTROL**
The average level of the signal is kept within a 40 dB range, or the gain can be fixed

**SAMPLING RATE AND PRE-RECORDING**
The signal is buffered for the pre-recording of the signal. This allows the beginning of events to be recorded even if they are only detected later.

| Sampling Rate (kHz) | Maximum Pre-recording (s) 16-bit | Maximum Pre-recording (s) 24-bit | Memory (KB/s) 16-bit | Memory (KB/s) 24-bit |
|---|---|---|---|---|
| 8 | 470 | 310 | 16 | 24 |
| 16 | 230 | 150 | 32 | 48 |
| 24 | 150 | 96 | 48 | 72 |
| 48 | 70 | 43 | 96 | 144 |

**PLAYBACK**
Playback of signal recordings can be listened to using the earphone/headphones connected to the headphone socket

**RECORDING FORMAT**
The recording format is either 24- or 16-bit wave files (extension .WAV) attached to the data in the project, easily played-back afterwards on a PC using BZ-5503, Type 7820 or 7825. Calibration information is stored in the .WAV file, allowing PULSE to analyse the recordings

### Functions with BZ-7130 and BZ-7131

**Manual Control of Recording:** Recording can be manually started and stopped during a measurement using a pushbutton or an external signal
**Automatic Control of Recording:** Start of recording when measurement is started. Minimum and Maximum recording time can be preset

### Functions with BZ-7133

**Manual Control of Recording (using Manual Event or Back-erase pushbutton, or an external signal):** Recording during all of the event, or for preset minimum and maximum duration. A Sound marker is set while recording. Selectable pre- and post-recording time
**Manual Control of Recording (using touch screen):** Recording for the selected time period (subject to the limitations of the pre-recording buffer). A Sound marker is set for the selected time period
**Automatic Control of Recording:** Recording during all of the event or for preset minimum and maximum duration. Selectable pre- and post-recording time
**Playback:** Playback of signal recordings can be listened to using earphone/headphones connected to the headphone socket
**Gain Adjustment:** –60 dB to 60 dB

## Software Specifications – Tone Assessment Option BZ-7231

**LICENSE**
Tone Assessment Option BZ-7231 is enabled with a separate license and can be used with the 1/3-octave and logging template (BZ-7132 and BZ-7133)

**TONE ASSESSMENT**
Tone assessment is based on the measured 1/3-octave spectrum in accordance with either the international 'ISO 1996:2007 Acoustics – Description, assessment and measurement of environmental noise – part 2: Determination of environmental noise levels. Annex D (informative) Objective method for assessing the audibility of tones in noise – Simplified method'

**SPECTRA ASSESSED**
The displayed 1/3-octave spectrum ($L_{eq}$)
may be assessed. Assessment is made as post-processing, that is, when measurement is paused or stopped

**SETUP ACCORDING TO STANDARD**
Setups in violation of the standard are indicated as such on the display. You can then accept to apply the default setup. Tone assessment will be made if possible, in spite of standard violations. For tone assessment according to ISO 1996-2, Annex D, you can set the division between the Low and Middle frequency range, the division between the Middle and High frequency range, and the limits for the level differences between adjacent bands

**RESULTS**
Tones are indicated above the spectrum when Tone is selected as spectrum parameter. The resulting adjustment can be viewed on the Value panel. It is not saved with the measurement

**QUALITY INDICATORS**
On the display, a quality indicator (smiley) will indicate that a hint is available for tone assessment quality.
Click on the indicator to see the hint

## Software Specifications – Measurement Partner Suite BZ-5503

BZ-5503 is included with 2250 Light for easy synchronisation of data between PC and 2250 Light. BZ-5503 is supplied on DVD BZ-5298

**ON-LINE DISPLAY OF 2250 LIGHT DATA**
Measurements on 2250 Light can be controlled from the PC and displayed on-line with the PC, using the same user interface on the PC as on 2250 Light

**DATA MANAGEMENT**
**Explorer:** Facilities for easy management of Instruments, Jobs and Projects (copy, cut, paste, delete, rename, create)
**Data Viewer:** View measurement data (content of projects)
**Synchronisation:** Projects can be synchronised between PC and 2250 Light

**EXPORT FACILITIES**
**Excel:** Projects (or user-specified parts) can be exported to Microsoft® Excel®
**Brüel & Kjær Software:** Projects can be exported to Predictor-LimA Type 7810, Noise Explorer Type 7815, Acoustic Determinator Type 7816, Evaluator Type 7820, Protector Type 7825 or Qualifier (Light) Type 7830 (7831)

**POST-PROCESSING**
Measurement Partner Suite is a suite of modules, including post-processing tools for data acquired with Type 2250-L. The following post-processing modules are available:
- Logging Post-processing Tools BZ-5503-A
- Spectrum Post-processing Tools BZ-5503-B

These two modules help to assess logging data and measured spectra, such as calculating contribution from markers on a logging profile or correcting spectra for background noise. For more information see the Product Data for Measurement Partner Suite, BP 2430

**2250 LIGHT SOFTWARE UPGRADES AND LICENSES**
The utility software controls 2250 Light software upgrades and licensing of the 2250 Light applications

**INTERFACE TO 2250 LIGHT**
USB, LAN or Internet connection
**USB Connection:**
- USB ver. 2.0

**LANGUAGE**
User Interface in Chinese (People's Republic of China), Chinese (Taiwan), Croatian, Czech, Danish, English, Flemish, French, German, Hungarian, Japanese, Italian, Korean, Polish, Portuguese, Romanian, Russian, Serbian, Slovenian, Spanish, Swedish and Turkish

**HELP**
Concise context-sensitive help in English

**PC REQUIREMENT**
**Operating System:** Windows® 7 or XP (both in 32-bit or 64-bit versions)
**Recommended PC:**
- Intel® Core™ 2 Duo
- Microsoft®.NET 4.0
- 2 GB of memory
- Sound card
- DVD drive
- At least one available USB port

## Ordering Information

**Type 2250-L-D10** Hand-held Analyzer with Sound Level Meter Software BZ-7130

**Type 2250-L-D20** Hand-held Analyzer with Sound Level Meter Software BZ-7130 and 1/1-octave Frequency Analysis Software BZ-7131

**Type 2250-L-D30** Hand-held Analyzer with Sound Level Meter Software BZ-7130 and 1/3-octave Frequency Analysis Software BZ-7132

**Type 2250-L-D40** Hand-held Analyzer with Sound Level Meter Software BZ-7130 and Logging Software BZ-7133

**Type 2250-L-D50** Hand-held Analyzer with Sound Level Meter Software BZ-7130, 1/1-octave Frequency Analysis Software BZ-7131, 1/3-octave Frequency Analysis Software BZ-7132 and Logging Software BZ-7133

Included with Type 2250-L:

- Type 4950: Prepolarized Free-field 1/2″ Microphone
- ZC-0032: Microphone Preamplifier
- AO-1494: USB Standard A to USB Micro B Interface Cable , 1.8 m (6 ft)
- BZ-5298: Environmental Software DVD, including Measurement Partner Suite BZ-5503
- ZG-0426: Mains Power Supply
- QB-0061: Battery Pack
- FB-0691: Hinged Cover for Hand-held Analyzer
- UA-0237: 90 mm dia. Windscreen
- DH-0696: Wrist Strap
- KE-0441: Protective Cover for 2250 Light
- UA-1654: 5 Extra Styli

## Software and Accessories Available Separately

**SOFTWARE MODULES**

| | |
|---|---|
| BZ-7131 | 1/1-octave Frequency Analysis Software for 2250 Light |
| BZ-7132 | 1/3-octave Frequency Analysis Software for 2250 Light |
| BZ-7133 | Logging Software for 2250 Light |
| BZ-7226 | Signal Recording Option |
| BZ-7231 | Tone Assessment Option |

**ANALYZER COMPONENTS**

| | |
|---|---|
| ZG-0444 | Charger for QB-0061 Battery Pack |

**CALIBRATION**

| | |
|---|---|
| Type 4231 | Sound Calibrator (fits in KE-0440) |

**MEASURING**

| | |
|---|---|
| Type 3535-A | All-weather Case (see Product Data BP 2251) |
| AO-0697-D-030 | Microphone Extension Cable, 10-pin LEMO, 3 m (10 ft) |
| AO-0697-D-100 | Microphone Extension Cable, 10-pin LEMO, 10 m (33 ft) |
| KE-0440 | Travel Bag |
| HT-0015 | Earphones |
| UA-0254 | 90 mm dia. Windscreens (6-pack of UA-0237) |
| UA-0587 | Tripod |
| UA-0801 | Small Tripod |
| UA-1317 | Microphone Holder |
| UA-1651 | Tripod Extension for Hand-held Analyzer |
| UL-1009 | SD Memory Card for Hand-held Analyzers |
| UL-1017 | SDHC Memory Card for Hand-held Analyzers |
| UA-1673 | Adaptor for Standard Tripod Mount |
| UA-1251 | Lightweight Tripod |
| UA-1654 | 5 Extra Styli |
| **MM-0256-A** | Weather Station Kit |
| **MM-0316-A** | Weather Station Kit |

Included with MM-0256-A or MM-0316-A:

- MM-0256-002: Six Parameter Weather Station (and mounting kit)
- MM-0316-002: Two Parameter Weather Station (and mounting kit)
- AO-0657: USB Cable
- AO-0659: Cable M12 8-pin (F) to Lemo 1-B 8-pin (M), 10 m (33.3 ft)
- BR 1779: Weather Station Field Guide
- DB-4364: Weather Station Pole Adapter
- KE-4334: Weather Station Carrying Case
- QX-0016: Screwdriver
- QX-1171: 2.5 mm Hex Wrench
- UA-1707-A: Weather Station Tripod Adaptor
- ZH-0689: Weather Station USB Adaptor

**INTERFACING**

| | |
|---|---|
| BZ-5503-A | Logging Module (see Product Data BP 2430) |
| BZ-5503-B | Spectrum Module (see Product Data BP 2430) |
| Type 7821 | Evaluator™ Light – data viewing and calculation software |
| Type 7825 | Protector™ – calculation software of personal noise exposure |
| UL-0250 | USB to RS–232 Converter |
| UL-1025 | SD WLAN Card for Hand-held Analyzers for hardware version 4 |

## Service Products

**MAINTENANCE**

| | |
|---|---|
| 2250-L-EW 1 | Extended Warranty, one year extension |
| 2250-L-MU 1 | Upgrade of 2250 Light to Type 2250, performed at headquarters |
| 2250-L-UPG | Upgrade of software applications to latest version |

**ACCREDITED CALIBRATION**

| | |
|---|---|
| 2250-CAI | Accredited Initial Calibration of Type 2250 |
| 2250-CAF | Accredited Calibration of Type 2250 |
| 2250-CTF | Traceable Calibration of Type 2250 |
| 2250-TCF | Conformance Test of Type 2250, with certificate |

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